CLAIMS

1. A metal-based carbon fiber composite material obtained by sintering of metal and carbon fiber, the composite material comprising 10 to 80% by weight of the carbon fiber based on a total weight of the composite material and the composite material being sintered at 70% or more of ideal density.

2. The metal-based carbon fiber composite material as claimed in Claim 1, wherein the carbon fiber is selected from the group consisting of pitch-based carbon fiber, PAN-based carbon fiber, vapor-phase grown carbon fiber, carbon nanotube and nanotube/nanofiber twisted wire.

3. The metal-based carbon fiber composite material as claimed in Claim 1, wherein the metal is selected from the group consisting of copper, aluminum, magnesium and their alloys.

4. The metal-based carbon fiber composite material as claimed in Claim 3, wherein the metal is aluminum or its alloy, and the composite material has a density of 2.6g/cm^3 or less.

5. The metal-based carbon fiber composite material as claimed in Claim 3, wherein the metal is copper or its

alloy and the composite material has a density of 6.8g/cm^3 or less.

6. The metal-based carbon fiber composite material as claimed in Claim 3, wherein the metal is magnesium or its alloy and the composite material has a density of 2.1g/cm^3 or less.

7. The metal-based carbon fiber composite material as claimed in Claim 1, wherein the carbon fiber is aligned.

8. The metal-based carbon fiber composite material, as claimed in Claim 7, wherein a thermal conductivity is 300W/mK or more in the arrangement direction of the carbon fiber.

9. Electronic equipment with semiconductors, wherein the metal-based carbon fiber composite material as claimed in any one of Claims 1 to 8 is used as a heat-dissipating member.

10. A power module, wherein the metal-based carbon fiber composite material as claimed in any one of Claims 1 to 8 is used as a heat-dissipating member.

11. A method for producing a metal-based carbon fiber composite material, comprising the steps of:

step 1: obtaining a metal fiber mixture by physically mixing carbon fiber with metal powder;

step 2: filling the metal fiber mixture into a jig, while the metal fiber mixture is aligned, and

step 3: setting the jig in the air, in a vacuum or in an inert gas atmosphere and directly supplying pulse electric current to the metal fiber mixture, with applying the pressure, to effect sintering by the heat generated therefrom.

12. The method for producing a metal-based carbon fiber composite material as claimed in Claim 11, wherein the carbon fiber is selected from the group consisting of pitch-based carbon fiber, PAN-based carbon fiber, vapor-phase grown carbon fiber, carbon nanotube, and nanotube/nanofiber twisted wire.

13. The method for producing a metal-based carbon fiber composite material as claimed in Claim 11, wherein the metal is selected from the group consisting of copper, aluminum, magnesium and their alloys.

14. The method for producing a metal-based carbon fiber composite material as claimed in Claim 11, wherein the carbon fiber has a fiber length of from 100nm to 5mm and the step 1is conducted by a physical mixing method in which a ball mill or the like is used.

15. The method for producing a metal-based carbon fiber composite material as claimed in Claim 11, wherein the carbon fiber has a fiber length of 5mm or more and the step 1 is conducted by a physical mixing method in which the direction of fiber is maintained.

16. The method for producing a metal-based carbon fiber composite material as claimed in Claim 11, wherein the carbon fiber has a fiber length of 100mm or more and the step 1 is conducted by immersing a fiber bundle into a metal powder suspension.

17. The method for producing a metal-based carbon fiber composite material as claimed in Claim 11, wherein the carbon fiber is a mixture of pitch-based carbon fiber, PAN-based carbon fiber or nanotube/nanofiber twisted wire with vapor-phase grown carbon fiber or carbon nanotube.

18. The method for producing a metal-based carbon fiber composite material as claimed in Claim 11, wherein in the step 2, the direction of carbon fiber is controlled in a two-dimensional manner.